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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/922,203

08/03/2001

Jaiganesh Balakrishnan

2-14

7960

7590

10/29/2004

Docket Administrator (Room 3J-219),  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733-3030

EXAMINER

BOCURE, TESFALDET

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/922,203		BALAKRISHNAN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Tesfaldet Bocure		2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-34 is/are allowed.
- 6) ☒ Claim(s) 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>08/03/01</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **ETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement received on August 3, 2001 has been considered and the initialed copy of the 1449 is attached with this correspondence.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 35 is rejected under 35 U.S.C. 102(e) as being anticipated by Kronestedt et al. (US patent number 6,298,095).

Kronestedt teaches a transmission system having a transmitter for transmitting the same burst signal via spatially separated antennas; wherein the transmitted same burst

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signal over the plurality of antennas having a corresponding of the same training sequences as in claim. See col. 2, lines 39-54.

***Allowable Subject Matter***

4. Claims 1-34 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: The claimed subject matter in claims 1-34 is allowable because the arts of record fail to teach or fairly suggest the claimed:” a method for use in a system that is adapted to transmit a data burst over at least two antennas, the method comprising the step of:

transmitting at least two training sequences, each of the at least two training sequences being transmitted over a different respective antenna, each of the at least two training sequences having a ***normalized auto-correlation below an auto-correlation threshold, the auto-correlation threshold being significantly less than unity, and each pair of the at least two training sequences having a normalized cross-correlation below a cross-correlation threshold, the cross-correlation threshold being significantly less than unity*** as in claims 1 and 26; a method for use in a system that is adapted to transmit a data burst over at least two antennas, the method comprising the step of:

transmitting at least two training sequences, each of the at least two training sequences being transmitted over a different respective antenna, the training sequences being shifted versions of each other, ***with each cyclic sequences having a normalized***

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***cyclic-auto-correlation below a cyclic-auto-correlation threshold, each cyclic sequence being  $N'$ ,  $N'=N-L+1$ , symbols of one of the at least two training sequences, the cyclic-auto-correlation threshold being significantly less than unity***,  $L$  being the number of symbols over which multipaths of significant power can arrive, and  $N$  being the number of symbols in one of the training Sequences as in claim 12; and a method for use in a system that is adapted to transmit a data burst over at least two antennas, the method comprising the step of: transmitting at least two training sequences, each of the at least two training sequences being transmitted over a different respective antenna, ***a trace of an inverse of a product of a matrix of symbols of the at least two training sequences and a conjugate transpose of the matrix is below a trace threshold, the trace threshold being below  $SML/(N-L+1)$ ,  $L$  being the number of symbols over which multipaths of significant power can arrive,  $M$  being the number of training sequences, and  $N$  being the number of symbols in one of the training sequences*** as in claim 19.”

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patent number 6,473,393 issued to Ariyavisitakul et al. discloses an antenna diversity transmitter for transmitting training sequences.

US patent number 4,873,724 issued to Satoh et al. disclose an encoder for encoding signals having normalized auto and cross correlations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure  
Primary Examiner  
Art Unit 2631

